

wind, snow and sleet storms, and freezing rain, and in times of culturally related disasters such as fire, explosions, nuclear electric power generation plant failures, and terrorist attack, must be protected and preserved.

Standard

Public safety related multi-media traffic should be assigned the highest priority based on network port designation and assignment.

UNIVERSAL BROADBAND SERVICE AND AFFORDABILITY

The Commission Advisory Committee recognized the need to define universal broadband telecommunications service in terms of affordability as well as geographic coverage. The Committee could not, however, agree on the percentage of gross monthly household income which should as a maximum be allocated to broadband telecommunication service. The Committee concluded that the issue of affordability needs to be addressed by the Congress and the President at the national level and that adoption of an affordability standard by the Commission should await action at the national level.

APPLICATION—SPECIFIC REQUIREMENTS

The broadband communications performance standard of 20 to 200 megabits per second specified above is ultimately justified based on network applications. The term broadband is often confusing to many as a measure of data transmission rate since it is measured in Hertz (cycles per second). Data transfer rate, however, is measured in bits per second or more typically in megabits (millions of bits) per second. The term broadband derives from the radio frequency spectral bandwidth licensed to a particular service provider or unlicensed to the general public. This bandwidth is measured in Hertz or in the broadband range megahertz (millions of cycles per second) or gigahertz (billions of cycles per second). High data transfer rates require wide or broadband widths. The ratio of data transfer rate to bandwidth expressed in percentage is spectral efficiency. With 100 percent spectral efficiency, 100 megahertz of bandwidth allows for a data transfer rate of 100 megabits per second.

Wide bandwidths and fast data transfer rates are important only as they relate to applications. DSL and cable broadband are often sold to consumers based on faster downloads of Web pages many of which contain images and video. The objectives and standards for this communications infrastructure plan must also consider other potential public sector and private sector applications that create the need for broadband telecommunication networks.

The dominant underlying media in all advanced broadband applications is video. A brief summary of the bandwidth requirements of the three predominant media reveals the sharp differences in media bandwidth requirements:

1. Voice—64 kilobits per second
2. Data—1 megabit per second
3. Video—5 to 200 megabits per second

Even though many applications require a mix of media to be effective, video bandwidth needs are so much larger that they predominate in multimedia bandwidth specifications. Video bandwidth requirements are a function of: format resolution, frame rate, modulation methods, and compression technology.

For one form of video communications, video conferencing, a range of bandwidth requirements based on international standard H.323 are:

1. VCR Quality Resolution: 352 x 288 pixels—3.8 megabits per second
2. TV Quality Resolution: 740 x 480 pixels—13.4 megabits per second

Video teleconferencing plays a key role in many public and private applications of broadband including areas such as telecommuting, home healthcare, and distance learning. It, therefore, represents a key capability in terms of broadband performance. It may, in fact, be the primary application for public sector, business and professional uses of the system.

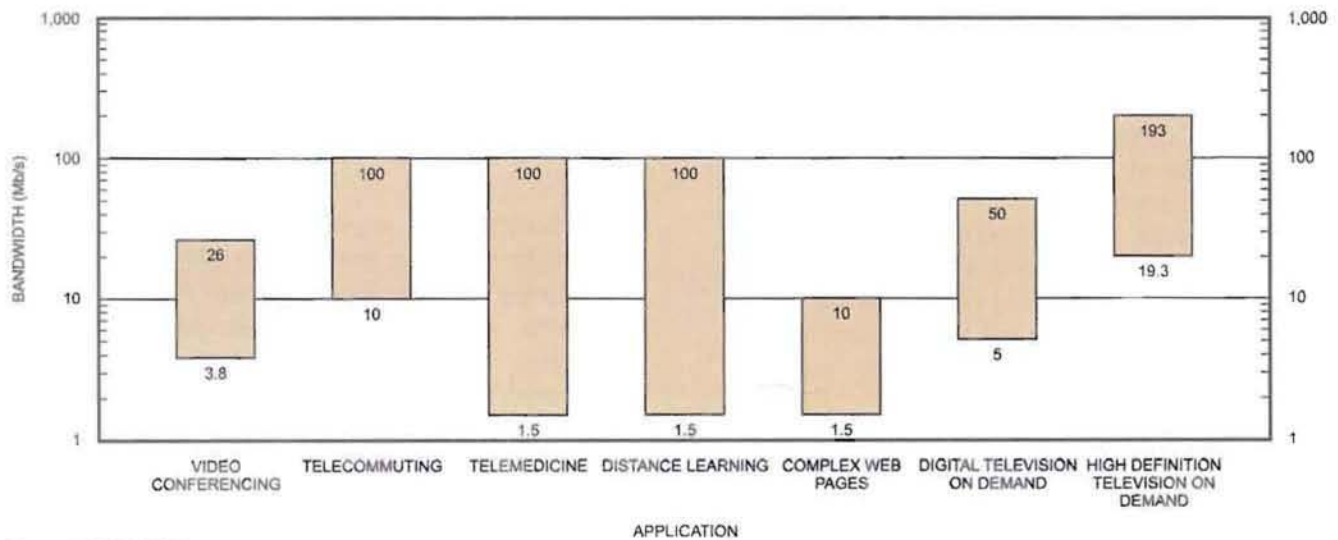
In the consumer domain, television in both its standard and high definition formats is the

equivalent driving force for major broadband capabilities. To accommodate 10 channels of high definition digital television on demand, a network with a bandwidth of about 193 megabits per second will be required. Such an Internet based capacity would allow potential users to purchase televised entertainment services from any content provider serving the Internet.

These two primary examples are given to illustrate the need for a "big broadband" communications capability. It is not possible, or appropriate, to review all potential broadband applications. To indicate the future scope of broadband communications, however, a display of a number of applications and the attendant bandwidth needs are shown in Figure 2.

Figure 2

APPLICATIONS SPEED MATRIX



Source: SEWRPC.

Chapter IV

INVENTORY FINDINGS—BACKGROUND CONDITIONS

INTRODUCTION

Reliable planning data are essential for the formulation of workable development plans. Consequently, an inventory of existing conditions is the first step in the planning process. The crucial nature of factual information in the planning process should be evident, since no reliable forecasts can be made or alternative courses of action evaluated without knowledge of the current state of the system being planned. The necessary inventory not only provides data describing the existing conditions, but also provide a basis for identifying existing and potential problems in the planning area and opportunities for development. The inventory data are also crucial to the forecasting of future facility and service needs, formulating alternative plans, and evaluating such plans.

Information regarding existing conditions and historic trends with respect to the demographic and economic base, to certain elements of the natural environment, and to certain elements of the man-made environment of the planning area provides a sound foundation for undertaking the telecommunications planning process. The Regional Planning Commission has developed an extensive database pertaining to these and other aspects of the Southeastern Wisconsin Region, updating that database periodically. A major inventory update effort was carried out by the Regional Planning Commission in the early 2000s in support of the preparation of new land use and transportation system plans and other elements of the com-

prehensive plan for the Region. This section presents a summary of the results of that inventory update pertaining to the population, economy, land use pattern, natural and agricultural resource base, and the transportation system within the Region.

DEMOGRAPHIC AND ECONOMIC BASE

Population¹

Historic Trends and Distribution Among Counties

The total resident population of the Region stood at 1,931,200 in 2000, compared to 1,810,400 in 1990. The increase of 120,800 persons, or 7 percent, in the regional population during the 1990's is substantially greater than the increase experienced during the 1970s (8,700 persons) and 1980s (45,600 persons)—but less than the increases of 333,000 persons and 182,500 persons experienced during the 1950s and 1960s, respectively (see Table 1).

In relative terms, the Region's population grew at a somewhat slower rate than the population of the State and of the United States during the 1990's. As a result, the regional share of the State population,

¹*The Regional Planning Commission conducted a detailed inventory and analysis of the regional population in 2004 following the release of the 2000 Federal census. The findings are presented in detail in SEWRPC Technical Report No. 11 (4th Edition), The Population of Southeastern Wisconsin, dated July 2004.*

Table 1

POPULATION TRENDS IN THE REGION, WISCONSIN, AND THE UNITED STATES: 1950-2000

Year	Region			Wisconsin			United States			Regional Population as a Percent of:	
	Population	Change from Preceding Year		Population	Change from Preceding Year		Population	Change from Preceding Year			
		Number	Percent		Number	Percent		Number	Percent	Wisconsin	United States
1950	1,240,618	--	--	3,434,575	--	--	151,325,798	--	--	36.1	0.82
1960	1,573,614	332,996	26.8	3,951,777	517,202	15.1	179,323,175	27,997,377	18.5	39.8	0.88
1970	1,756,083	182,469	11.6	4,417,821	466,044	11.8	203,302,031	23,978,856	13.4	39.7	0.86
1980	1,764,796	8,713	0.5	4,705,642	287,821	6.5	226,504,825	23,202,794	11.4	37.5	0.78
1990	1,810,364	45,568	2.6	4,891,769	186,127	4.0	249,632,692	23,127,867	10.2	37.0	0.73
2000	1,931,165	120,801	6.7	5,363,675	471,906	9.6	281,421,906	31,789,214	12.7	36.0	0.69

Source: U.S. Bureau of the Census and SEWRPC.

decreased slightly, from 37 percent to 36 percent while the regional share of the national population also declined. As indicated in Table 1, the regional share of the State and national populations has been gradually decreasing since 1960.

During the 1990s, six of the constituent counties of the Region experienced significant population growth, while Milwaukee County lost population. Waukesha County experienced the greatest gain in population during the 1990s, increasing by 56,100 persons. Kenosha, Ozaukee, Racine, Walworth, and Washington Counties gained between 9,400 and 22,200 persons each. Milwaukee County lost 19,100 persons.

The past decade saw further change in the relative distribution of the population among the counties of the Region, continuing long-term trends in this respect (see Table 2 and Figure 3). Milwaukee County's share of the regional population decreased by about 4 percentage points during the 1990s, while the share of each of the other six counties increased. Over the past fifty years, the most notable change in the distribution has been the increase in Waukesha County's share, from 7 percent to 19 percent of the regional population, and the decrease in Milwaukee County's share, from 70 percent to 49 percent.

Components of Population Change

Population change can be attributed to natural increase and net migration. Natural increase is the balance between births and deaths in an area over a given period of time; it can be measured directly from historical records on the number of births and deaths for an area. Net migration is the balance between migration to and from an area over a given period of time; as a practical matter, net migration is

often determined as a derived number, obtained by subtracting natural increase from total population change for the time period concerned.

Of the total population increase of 120,800 persons in the Region between 1990 and 2000, 116,900 can be attributed to natural increase; the balance to modest net in-migration—about 3,900 persons. The level of natural increase in the Region has been relatively stable since the 1970s, averaging about 119,000 persons per decade (see Table 3 and Figure 4). This is significantly lower than the levels experienced during the 1950s and 1960s—which include much of the post-World War II baby-boom era—when natural increase in the Region reached very high levels of 224,500 and 202,400 persons, respectively.

As noted above, the Region experienced a modest net in-migration during the 1990s—the first decade since the 1950s that the Region as a whole experienced positive net migration. The net in-migration of 3,900 persons for the Region during the 1990s followed three decades of net out-migration—out-migrations of 81,800 persons during the 1980s, 104,400 persons during the 1970s, and 19,900 persons during the 1960s.

An important aspect of net migration is the in-migration of persons to the Region from abroad. There was a significant movement of foreign-born persons into the Region during the 1990s. About 45,400 foreign-born persons in the Region in 2000 were reported by the U.S. Census Bureau to have entered the country between 1990 and 2000; this is significantly greater than the figures ranging from 12,300 to 18,300 reported in the 1970, 1980, and 1990 censuses. The increase in the foreign born

Table 2

POPULATION IN THE REGION BY COUNTY: 1950-2000

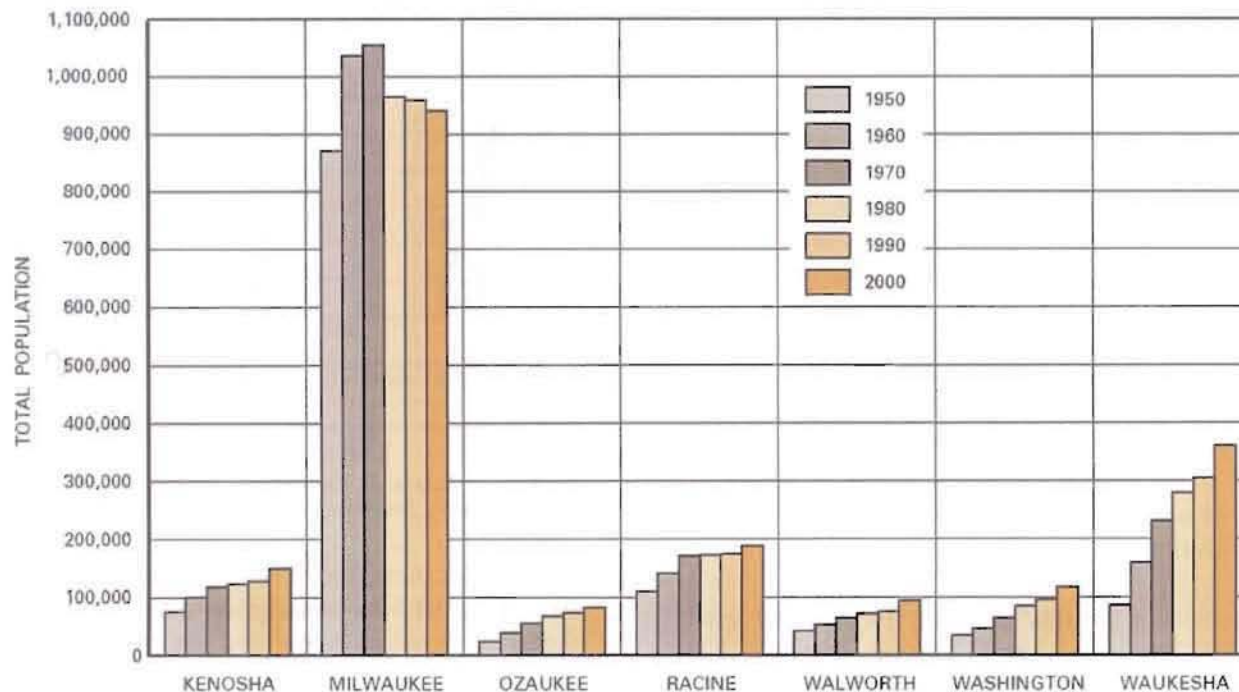
County	Total Population											
	1950		1960		1970		1980		1990		2000	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Kenosha.....	75,238	6.1	100,615	6.4	117,917	6.7	123,137	7.0	128,181	7.1	149,577	7.7
Milwaukee.....	871,047	70.2	1,036,041	65.8	1,054,249	60.1	964,988	54.7	959,275	53.0	940,164	48.7
Ozaukee.....	23,361	1.9	38,441	2.5	54,461	3.1	66,981	3.8	72,831	4.0	82,317	4.3
Racine.....	109,585	8.8	141,781	9.0	170,838	9.7	173,132	9.8	175,034	9.7	188,831	9.8
Walworth.....	41,584	3.4	52,368	3.3	63,444	3.6	71,507	4.0	75,000	4.1	92,013	4.7
Washington.....	33,902	2.7	46,119	2.9	63,839	3.6	84,848	4.8	95,328	5.3	117,496	6.1
Waukesha.....	85,901	6.9	158,249	10.1	231,335	13.2	280,203	15.9	304,715	16.8	360,767	18.7
Region	1,240,618	100.0	1,573,614	100.0	1,756,083	100.0	1,764,796	100.0	1,810,364	100.0	1,931,165	100.0

County	Population Change									
	1950-1960		1960-1970		1970-1980		1980-1990		1990-2000	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha.....	25,377	33.7	17,302	17.2	5,220	4.4	5,044	4.1	21,396	16.7
Milwaukee.....	164,994	18.9	18,208	1.8	-89,261	-8.5	-5,713	-0.6	-19,111	-2.0
Ozaukee.....	15,080	64.6	16,020	41.7	12,520	23.0	5,850	8.7	9,486	13.0
Racine.....	32,196	29.4	29,057	20.5	2,294	1.3	1,902	1.1	13,797	7.9
Walworth.....	10,784	25.9	11,076	21.2	8,063	12.7	3,493	4.9	17,013	22.7
Washington.....	12,217	36.0	17,720	38.4	21,009	32.9	10,480	12.4	22,168	23.3
Waukesha.....	72,348	84.2	73,086	46.2	48,868	21.1	24,512	8.7	56,052	18.4
Region	332,996	26.8	182,469	11.6	8,713	0.5	45,568	2.6	120,801	6.7

Source: U.S. Bureau of the Census and SEWRPC.

Figure 3

POPULATION IN THE REGION BY COUNTY: 1950-2000



Source: U.S. Bureau of the Census and SEWRPC.

Table 3

**LEVELS OF POPULATION CHANGE, NATURAL INCREASE,
AND NET MIGRATION FOR THE REGION BY COUNTY: 1950-2000**

County	1950-1960			1960-1970			1970-1980		
	Population Change	Natural Increase	Net Migration	Population Change	Natural Increase	Net Migration	Population Change	Natural Increase	Net Migration
Kenosha	25,377	13,931	11,446	17,302	15,125	2,177	5,220	7,746	-2,526
Milwaukee	164,994	150,141	14,853	18,208	122,192	-103,984	-89,261	60,105	-149,366
Ozaukee	15,080	5,926	9,154	16,020	6,090	9,930	12,520	4,798	7,722
Racine	32,196	21,473	10,723	29,057	20,441	8,616	2,294	12,842	-10,548
Walworth	10,784	5,733	5,051	11,076	4,685	6,391	8,063	2,451	5,612
Washington	12,217	7,501	4,716	17,720	8,122	9,598	21,009	7,163	13,846
Waukesha	72,348	19,746	52,602	73,086	25,699	47,387	48,868	18,011	30,857
Region	332,996	224,451	108,545	182,469	202,354	-19,885	8,713	113,116	-104,403

County	1980-1990			1990-2000		
	Population Change	Natural Increase	Net Migration	Population Change	Natural Increase	Net Migration
Kenosha	5,044	8,177	-3,133	21,396	9,365	12,031
Milwaukee	-5,713	89,529	-75,242	-19,111	64,145	-83,256
Ozaukee	5,850	5,141	709	9,486	3,916	5,570
Racine	1,902	13,720	-11,818	13,797	11,127	2,670
Walworth	3,493	2,939	554	17,013	2,592	14,421
Washington	10,480	7,756	2,724	22,168	7,159	15,009
Waukesha	24,512	20,068	4,444	56,052	18,582	37,470
Region	45,568	127,330	-81,762	120,801	116,886	3,915

Source: U.S. Bureau of the Census, Wisconsin Department of Health and Family Services, and SEWRPC.

population, including a significant Hispanic component, is an important aspect of the population migration pattern for the Region during the 1990s.

Households

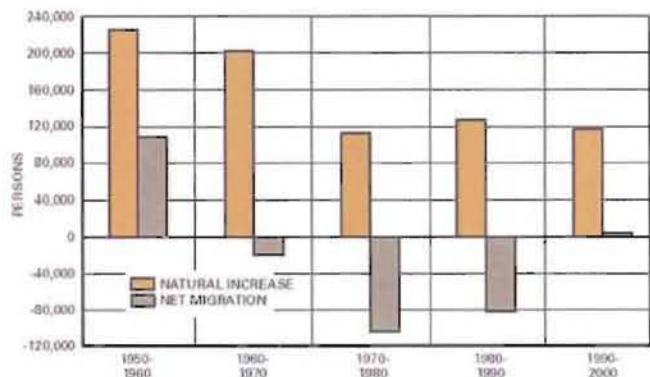
Historic Trends and Distribution Among Counties

In addition to resident population, the number of households, or occupied housing units, is of importance in telecommunications planning. Households directly influence the demand for urban land as well as the demand for transportation and other public facilities and services such as telecommunications facilities and services. By definition, a household includes all persons who occupy a housing unit—defined by the Census Bureau as a house, an apartment, a mobile home, a group of rooms, or a single-room that is occupied, or intended for occupancy, as a separate living quarter.

The number of households in the Region increased by 72,900 households, or 11 percent, from 676,100 households in 1990, to 749,000 households in 2000.

Figure 4

**COMPONENTS OF POPULATION
CHANGE IN THE REGION: 1950-2000**



Source: U.S. Bureau of the Census, Wisconsin Department of Health and Family Services, and SEWRPC.

This follows increases of 48,200 households during the 1980s; 91,500 households during the 1970s; 70,600 households during the 1960s; and 111,400 households during the 1950s.

During the 1990s, all counties in the Region experienced increases in the number of households, led by Waukesha County, which gained 29,200 households, an increase of 28 percent. Milwaukee County gained 4,700 households—a 1 percent increase—during the 1990s, despite experiencing a decrease in total population. Changes in the distribution of households in the Region going back 50 years are indicated in Table 4 and Figure 5. These changes are similar to the distributional changes in the total population.

Household Size

In relative terms, the rate of growth in households in the Region during the 1990s, 10.8 percent, exceeded the rate of growth in the total population, 6.7 percent, as well as the rate of growth in the household population, 6.6 percent. Similar patterns were observed over each of the four previous decades. For the past 50 years overall, the number of households in the Region increased by 111 percent, while the total population increased by 56 percent and the household population increased by 58 percent. These differential growth rates between households and population are reflected in a declining average household size in the Region.

For the Region as a whole, the average household size—calculated as the household population divided by the number of households—was 2.52 persons in 2000 (see Table 5). During the 1990s, the average household size in the Region decreased by about 0.10 person per household, or about 4 percent, from the 1990 figure of 2.62 persons. The decrease in household size during the 1990s represents a continuation of a long-term trend in declining average household size for the Region over the past 50 years. A particularly large decrease in the average household size for the Region occurred between 1970 and 1980. Each of the seven counties in the Region has experienced a similar long-term trend of declining household size, traceable back to the 1970 or prior censuses. The decline in household size is related in part to changing household types in the Region. Single-person households and other non-family households have increased at a much faster rate than family households in the Region over the past three decades.

Employment²

Historic Trends and Distribution Among Counties

Information regarding the number and type of employment opportunities, or jobs, in an area is an important measure of the size and structure of the area's economy. Employment data presented in this section pertain to both wage and salary employment and the self-employed, and include both full-time and part-time jobs.

Total employment in the Region stood at 1,222,800 jobs in 2000, compared to 1,062,600 jobs in 1990. The increase of 160,200 jobs during the 1990s compares to 114,400 during the 1980s; 163,300 during the 1970s; 111,900 during the 1960s; and 99,500 during the 1950s (see Table 6).

In relative terms, employment in the Region grew at a somewhat slower rate than both the State and the Nation during the 1990s. As a result, the Region's share of total State employment decreased from about 38 percent to about 36 percent, with the regional share of national employment also showing a slight decrease.

Historically, employment levels, both nationally and within the Region, tend to fluctuate in the short-term, rising and falling in accordance with business cycles. The long period of nearly uninterrupted job growth between 1983 and 2000 is unusual in this respect. Nationally and within the Region, total employment increased each year during that time, with the exception of a slight decrease in 1991. The extended period of employment growth in the Region ended after 2000, with total employment in the Region decreasing each year between 2000 and 2003. Estimated total employment in the Region stood at 1,179,000 jobs in 2003, about 4 percent below the 2000 level.

² *The Regional Planning Commission conducted a detailed inventory and analysis of the regional economy in 2004. The findings are presented in detail in SEWRPC Technical Report No. 10 (4th Edition), The Economy of Southeastern Wisconsin, dated July 2004.*

Table 4

HOUSEHOLDS IN THE REGION BY COUNTY: 1950-2000

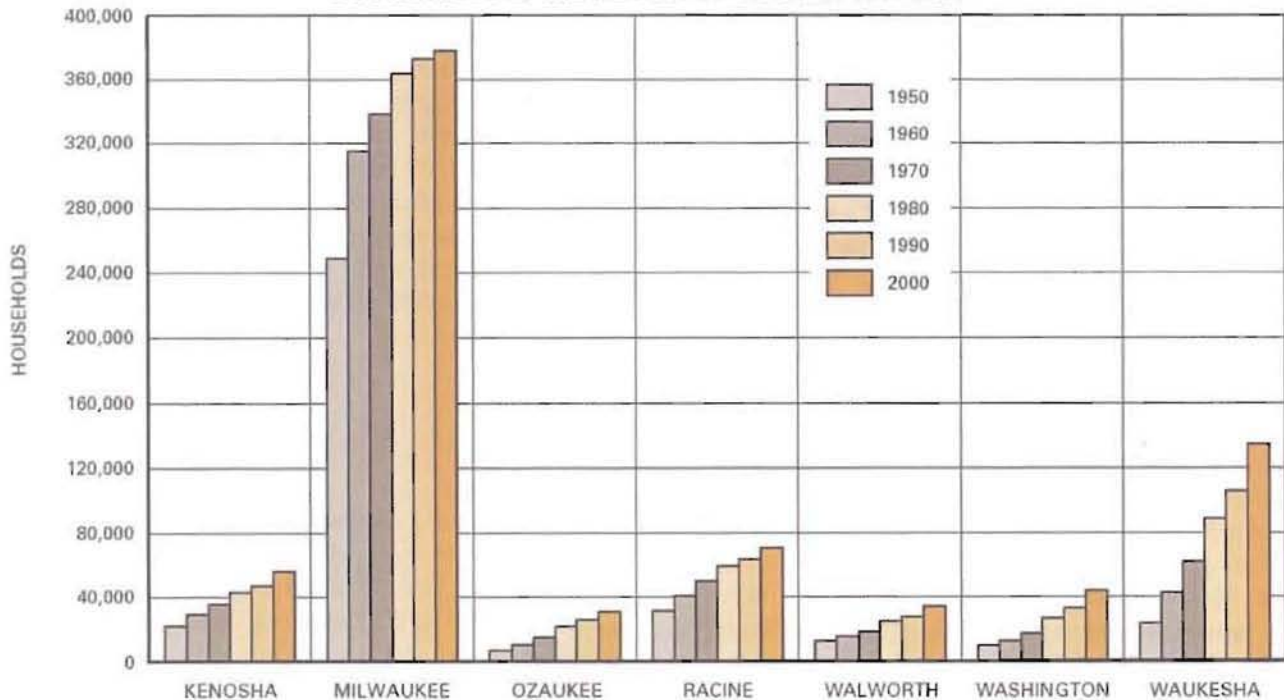
County	Total Households											
	1950		1960		1970		1980		1990		2000	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Kenosha.....	21,958	6.2	29,545	6.4	35,468	6.6	43,064	6.9	47,029	6.9	56,057	7.5
Milwaukee.....	249,232	70.3	314,875	67.6	338,605	63.1	363,653	57.9	373,048	55.2	377,729	50.4
Ozaukee.....	6,591	1.9	10,417	2.2	14,753	2.8	21,763	3.5	25,707	3.8	30,857	4.1
Racine.....	31,399	8.8	40,736	8.7	49,796	9.3	59,418	9.5	63,736	9.4	70,819	9.5
Walworth.....	12,369	3.5	15,414	3.3	18,544	3.5	24,789	3.9	27,620	4.1	34,505	4.6
Washington.....	9,396	2.7	12,532	2.7	17,385	3.2	26,716	4.2	32,977	4.9	43,843	5.8
Waukesha.....	23,599	6.6	42,394	9.1	61,935	11.5	88,552	14.1	105,990	15.7	135,229	18.1
Region	354,544	100.0	465,913	100.0	536,486	100.0	627,955	100.0	676,107	100.0	749,039	100.0

County	Household Change									
	1950-1960		1960-1970		1970-1980		1980-1990		1990-2000	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha.....	7,587	34.6	5,923	20.0	7,596	21.4	3,965	9.2	9,028	19.2
Milwaukee.....	65,643	26.3	23,730	7.5	25,048	7.4	9,395	2.6	4,681	1.3
Ozaukee.....	3,826	58.0	4,336	41.6	7,010	47.5	3,944	18.1	5,150	20.0
Racine.....	9,337	29.7	9,060	22.2	9,622	19.3	4,318	7.3	7,083	11.1
Walworth.....	3,045	24.6	3,130	20.3	6,245	33.7	2,831	11.4	6,885	24.9
Washington.....	3,136	33.4	4,853	38.7	9,331	53.7	6,261	23.4	10,866	32.9
Waukesha.....	18,795	79.6	19,541	46.1	26,617	43.0	17,438	19.7	29,239	27.6
Region	111,369	31.4	70,573	15.1	91,469	17.0	48,152	7.7	72,932	10.8

Source: U.S. Bureau of the Census and SEWRPC.

Figure 5

HOUSEHOLDS IN THE REGION BY COUNTY: 1950-2000



Source: U.S. Bureau of the Census and SEWRPC.

Table 5

AVERAGE HOUSEHOLD SIZE IN THE REGION BY COUNTY: 1950-2000

County	Average Persons per Household					
	1950	1960	1970	1980	1990	2000
Kenosha	3.36	3.36	3.26	2.80	2.67	2.60
Milwaukee	3.34	3.21	3.04	2.59	2.50	2.43
Ozaukee	3.51	3.65	3.66	3.04	2.79	2.61
Racine	3.37	3.39	3.35	2.86	2.70	2.59
Walworth	3.25	3.28	3.16	2.74	2.60	2.57
Washington	3.55	3.64	3.63	3.14	2.86	2.65
Waukesha	3.51	3.66	3.66	3.11	2.83	2.63
Region	3.36	3.30	3.20	2.75	2.62	2.52

Source: U.S. Bureau of the Census and SEWRPC.

Table 6

EMPLOYMENT IN THE REGION, WISCONSIN, AND THE UNITED STATES: 1950-2000

Year	Region			Wisconsin			United States			Regional Employment as a percent of:	
	Jobs	Change from Preceding Year		Jobs	Change from Preceding Year		Jobs	Change from Preceding Year			
		Number	Percent		Number	Percent		Number	Percent	Wisconsin	United States
1950	573,500	--	--	1,413,400	--	--	61,701,200	--	--	40.6	0.93
1960	673,000	99,500	17.3	1,659,400	246,000	17.4	72,057,000	10,355,800	16.8	40.6	0.93
1970	784,900	111,900	16.6	1,929,100	269,700	16.3	88,049,600	15,992,600	22.2	40.7	0.89
1980	948,200	163,300	20.8	2,429,800	500,700	26.0	111,730,200	23,680,600	26.9	39.0	0.85
1990	1,062,600	114,400	12.1	2,810,400	380,600	15.7	136,708,900	24,978,700	22.4	37.8	0.78
2000	1,222,800	160,200	15.1	3,421,800	611,400	21.8	165,209,800	28,500,900	20.8	35.7	0.74

NOTE: Excludes military employment.

Source: U.S. Bureau of Economic Analysis and SEWRPC.

Information on current and historic employment levels is presented by county in (Table 7 and Figure 6). Each county in the Region experienced an increase in employment between 1990 and 2000. With an increase of 81,100 jobs, Waukesha County accounted for just over half of the total increase in the regional employment during the 1990s. Among the other six counties, the growth in employment during the 1990s ranged from 4,800 jobs in Racine County to 16,500 jobs in Kenosha County.

Between 1990 and 2000, Milwaukee and Racine Counties decreased in their share of total regional employment while the share of each of the other five counties increased. Over the past five decades, Milwaukee County has experienced a substantial decrease in its share of regional employment;

Waukesha County has experienced a substantial increase; and Ozaukee, Walworth, and Washington Counties have experienced gradual increases. In Kenosha and Racine Counties, the share of total regional employment in 2000 was about the same as in 1950, with some fluctuations occurring over the intervening decades.

Substantial job growth has also occurred in the counties located immediately south of the Region. Employment in Lake and McHenry Counties (Illinois), combined increased by about 146,800 jobs during the 1990s. By 2000 total employment in Lake and McHenry Counties combined stood at 505,200 jobs. A significant number of Kenosha and Walworth County residents find employment in Northeastern Illinois.

Table 7

EMPLOYMENT IN THE REGION BY COUNTY: 1950-2000

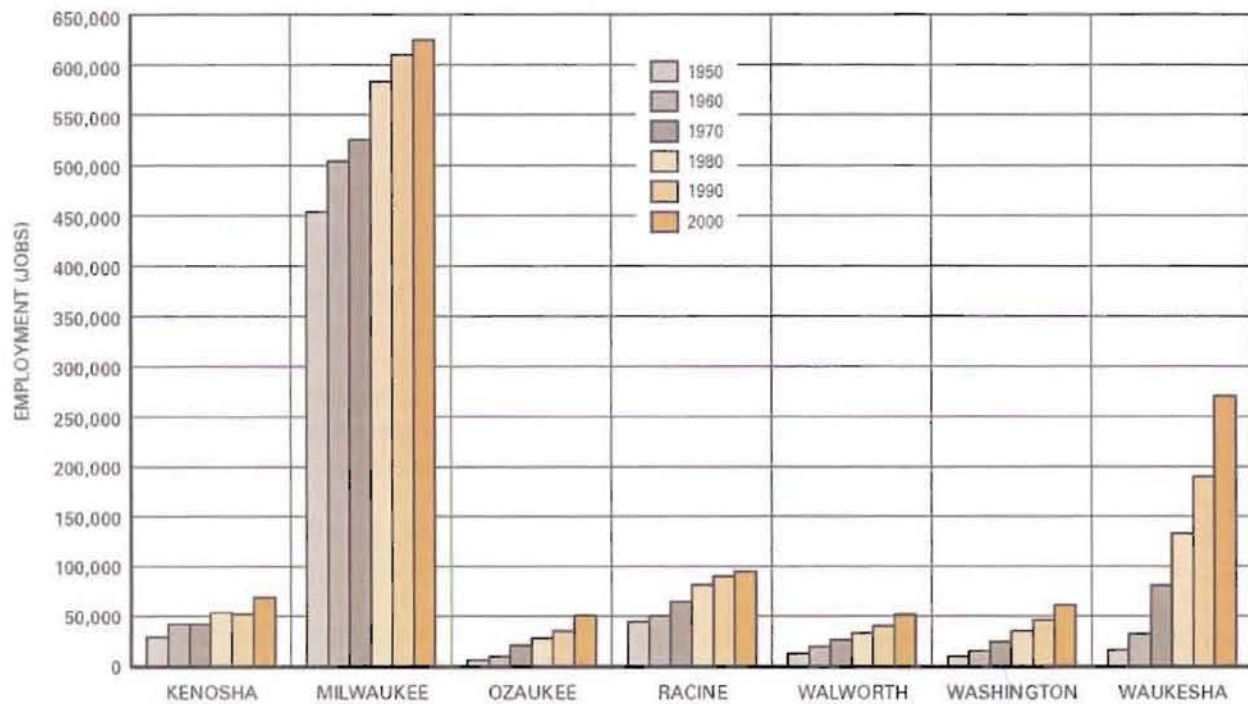
County	Total Employment (Jobs)											
	1950		1960		1970		1980		1990		2000	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Kenosha.....	29,100	5.1	42,200	6.3	42,100	5.4	54,100	5.7	52,200	4.9	68,700	5.6
Milwaukee.....	453,500	79.1	503,300	74.8	525,200	66.9	583,200	61.5	609,800	57.4	624,600	51.1
Ozaukee.....	6,600	1.0	10,200	1.5	21,300	2.7	28,200	3.0	35,300	3.3	50,800	4.2
Racine.....	44,500	7.8	49,900	7.4	64,600	8.2	81,200	8.6	89,600	8.4	94,400	7.7
Walworth.....	13,200	2.3	19,600	2.9	26,400	3.4	33,500	3.5	39,900	3.8	51,800	4.2
Washington.....	10,200	1.8	15,200	2.3	24,300	3.1	35,200	3.7	46,100	4.3	61,700	5.0
Waukesha.....	16,400	2.9	32,600	4.8	81,000	10.3	132,800	14.0	189,700	17.9	270,800	22.2
Region	573,500	100.0	673,000	100.0	784,900	100.0	948,200	100.0	1,062,600	100.0	1,222,800	100.0

County	Employment Change									
	1950-1960		1960-1970		1970-1980		1980-1990		1990-2000	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha.....	13,100	45.0	-100	-0.2	12,000	28.5	-1,900	-3.5	16,500	31.6
Milwaukee.....	49,800	11.0	21,900	4.4	58,000	11.0	26,600	4.6	14,800	2.4
Ozaukee.....	3,600	54.5	11,100	108.8	6,900	32.4	7,100	25.2	15,500	43.9
Racine.....	5,400	12.1	14,700	29.5	16,600	25.7	8,400	10.3	4,800	5.4
Walworth.....	6,400	48.5	6,800	34.7	7,100	26.9	6,400	19.1	11,900	29.8
Washington.....	5,000	49.0	9,100	59.9	10,900	44.9	10,900	31.0	15,600	33.8
Waukesha.....	16,200	98.8	48,400	148.5	51,800	64.0	56,900	42.8	81,100	42.8
Region	99,500	17.3	111,900	16.6	163,300	20.8	114,400	12.1	160,200	15.1

Source: U.S. Bureau of Economic Analysis and SEWRPC.

Figure 6

EMPLOYMENT IN THE REGION BY COUNTY: 1950-2000



Source: U.S. Bureau of Economic Analysis and SEWRPC.

Table 8

EMPLOYMENT BY GENERAL INDUSTRY GROUP IN THE REGION: 1970-2000

General Industry Group	Employment								Percent Change in Employment			
	1970		1980		1990		2000		1970-1980	1980-1990	1990-2000	1970-2000
	Jobs	Percent of Total	Jobs	Percent of Total	Jobs	Percent of Total	Jobs	Percent of Total				
Agriculture	12,000	1.5	10,000	1.0	7,200	0.7	6,000	0.5	-16.7	-28.0	-16.7	-50.0
Construction	32,400	4.1	33,900	3.6	45,100	4.2	53,800	4.4	4.6	33.0	19.3	66.0
Manufacturing	254,400	32.4	264,200	27.9	223,500	21.0	224,300	18.3	3.9	-15.4	0.4	-11.8
Transportation, Communication, and Utilities	38,500	4.9	42,200	4.4	46,300	4.4	54,800	4.5	9.6	9.7	18.4	42.3
Wholesale Trade	37,200	4.7	46,200	4.9	55,300	5.2	64,400	5.3	24.2	19.7	16.5	73.1
Retail Trade	133,900	17.1	153,900	16.2	185,400	17.4	193,700	15.8	14.9	20.5	4.5	44.7
Finance, Insurance, and Real Estate	47,600	6.1	75,600	8.0	81,800	7.7	93,700	7.7	58.8	8.2	14.5	96.8
Services	141,800	18.1	216,700	22.8	304,700	28.7	406,000	33.2	52.8	40.6	33.2	186.3
Government and Government Enterprises	84,400	10.8	101,100	10.7	106,200	10.0	114,400	9.3	19.8	5.0	7.7	35.5
Other ^b	2,700	0.3	4,400	0.5	7,100	0.7	11,700	1.0	63.0	61.4	64.8	333.3
Total	784,900	100.0	948,200	100.0	1,062,600	100.0	1,222,800	100.0	20.8	12.1	15.1	55.8

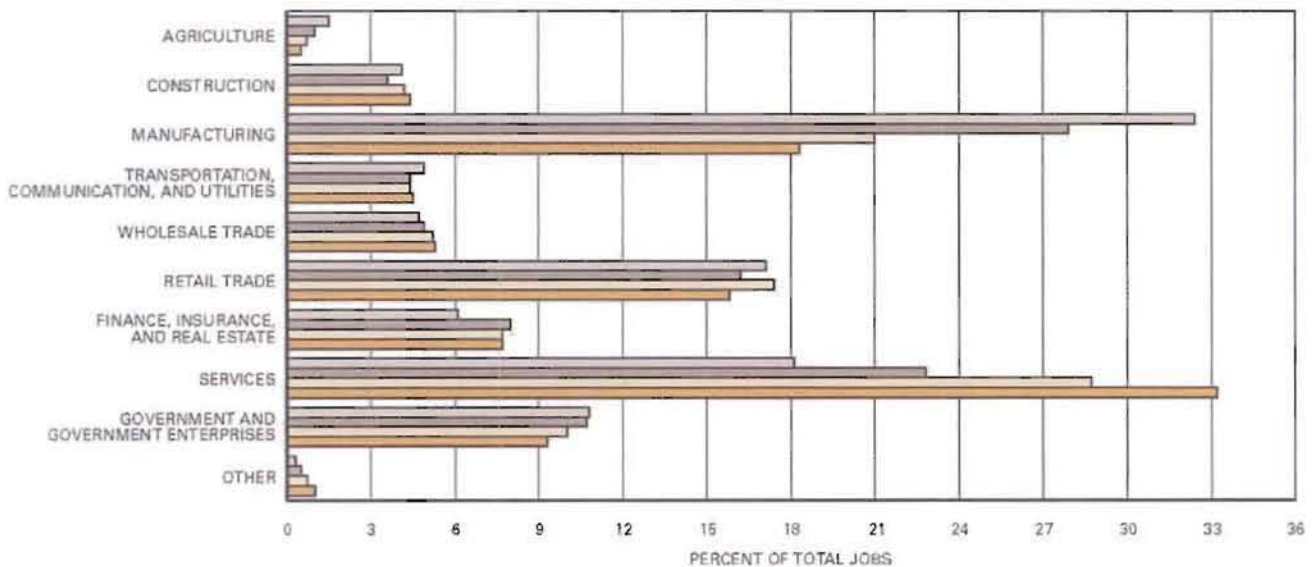
^aIncludes all nonmilitary government agencies and enterprises.

^bIncludes agricultural services, forestry, commercial fishing, mining, and unclassified jobs.

Source: U.S. Bureau of Economic Analysis and SEWRPC.

Figure 7

PERCENT DISTRIBUTION OF EMPLOYMENT BY GENERAL INDUSTRY GROUP IN THE REGION: 1970, 1980, 1990, AND 2000



Source: U.S. Bureau of Economic Analysis and SEWRPC.

Employment by Industry

Information regarding employment by industry group provides insight into the structure of the regional economy and changes in that structure over time. As indicated in Table 8 and Figure 7, the services sector made up the largest proportion of

regional employment in 2000, accounting for 33 percent of total employment. This was followed by manufacturing and retail trade, with 18 percent and 16 percent of total regional employment, respectively. Together, these three sectors accounted for roughly two-thirds of regional employment in 2000.

The 1990s saw a continuation of a shift in the regional economy from a manufacturing to a service orientation. Manufacturing employment in the Region was virtually unchanged during the 1990s, following a 15 percent decrease during the 1980s, and a modest 4 percent increase during the 1970s. Conversely, service-related employment increased substantially during each of the past three decades—by 33 percent during the 1990s, 41 percent during the 1980s, and 53 percent during 1970s. Due to these differential growth rates, the proportion of manufacturing jobs relative to total jobs in the Region decreased from 32 percent in 1970 to 18 percent in 2000, while service-related employment increased from 18 percent in 1970 to 33 percent in 2000. In comparison to the manufacturing and services industry groups, other major industry groups—such as wholesale trade, retail trade, government, and finance, insurance and real estate—have been relatively stable in terms of their share of total employment in the Region over the last three decades.

The State of Wisconsin and the United States have experienced a similar shift from manufacturing to service-related employment. However, the trend in manufacturing employment for the State overall has been more robust than for the Region. Manufacturing employment in the State increased by 24 percent between 1970 and 2000; the Region's manufacturing employment decreased by 12 percent during this time. While historically the Region exceeded the State in the proportion of manufacturing jobs relative to total jobs, by 2000 the Region and State had about the same proportion of jobs in manufacturing—just over 18 percent. In comparison, manufacturing jobs comprised about 12 percent of all jobs in the Nation in 2000.

LAND USE

The Commission relies on two types of inventories and analyses in order to monitor urban growth and development in the Region—an urban growth ring analysis and a land use inventory. The urban growth ring analysis delineates the outer limits of concentrations of urban development and depicts the urbanization of the Region over the past 150 years. When related to urban population levels, the urban growth ring analysis provides a good basis for calculating urban population and household densities. By contrast, the Commission land use inven-

tory is a more detailed inventory that places all land and water areas of the Region into one of 66 discrete land use categories, providing a basis for analyzing specific urban and nonurban land uses. Both the urban growth ring analysis and the land use inventory for the Region have been updated to the year 2000 under the continuing regional planning program.

Urban Growth Ring Analysis

The urban growth ring analysis illustrates the historical pattern of urban settlement, growth, and development of the Region since 1850 for selected points in time. Areas identified as urban under this time series analysis include areas of the Region where residential structures or other buildings have been constructed in relatively compact groups, thereby indicating a concentration of residential, commercial, industrial, governmental, institutional, or other urban land uses. In addition, the identified urban areas encompass certain open space lands such as urban parks and small areas being preserved for resource conservation purposes within the urban areas.³

As part of the urban growth ring analysis, urban growth for the years prior to 1940 was identified using a variety of sources, including the records of local historical societies; land subdivision plat records; farm plat maps; U.S. Geological Survey topographic maps; and Wisconsin Geological and Natural History Survey records. Urban growth for

³ *As part of the urban growth ring analysis, urban areas are defined as concentrations of residential, commercial, industrial, governmental, or institutional buildings or structures, along with their associated yards, parking, and service areas, having a combined area of five acres or more. In the case of residential uses, such areas must include at least 10 structures—over a maximum distance of one-half mile—located along a linear feature, such as a roadway or lakeshore, or at least 10 structures located in a relatively compact group within a residential subdivision. Urban land uses which do not meet these criteria because they lack the concentration of buildings or structures—such as cemeteries, airports, public parks, golf courses—are identified as urban where such uses are surrounded on at least three sides by urban land uses that do meet the aforementioned criteria.*

the years 1940, 1950, 1963, 1970, 1980, 1990, and 2000 was identified using aerial photographs. Because of limitations inherent in the source materials, information presented for the years prior to 1940 represents the extent of urban development at approximately those points in time, whereas the information presented for later years can be considered precisely representative of those respective points in time.

The urban growth ring analysis, updated through 2000, is presented graphically on Map 2. In 1850, the urban portion of the Region was concentrated primarily in the larger urban centers located at Burlington, Kenosha, Milwaukee, Racine, Waukesha, and West Bend, along with many smaller settlements throughout the Region. Over the 100-year period from 1850 to 1950, urban development in the Region occurred in a pattern resembling concentric rings around existing urban centers, resulting in a relatively compact regional settlement pattern. After 1950, there was a significant change in the pattern and rate of urban development in the Region. While substantial amounts of development continued to occur adjacent to established urban centers, considerable development also occurred in isolated enclaves in outlying areas of the Region. Map 2 indicates a continuation of this trend during the 1990s, with significant amounts of development occurring adjacent to existing urban centers, and with considerable development continuing to occur in scattered fashion in outlying areas.

The urban growth ring analysis, in conjunction with the Federal censuses, provides a basis for calculating urban population and household densities in the Region and changes in density over time. Table 9 relates the urban area identified by the urban growth ring analysis with the urban population and households, going back to 1940.⁴ In Table 9, the “urban population” is the total population of the Region excluding the rural farm population, as reported by the U.S. Bureau of the Census; similarly,

⁴ The urban growth ring analysis areas presented in Table 9 were developed using computerized map area measuring software. The area measurements presented in Table 9 differ slightly from the corresponding area measurement reported in the previous regional land use plan report, SEWRPC Planning Report No. 45, those measurements having been based on a combination of manual and computer measurement techniques.

“urban households” as reported in that table consist of all households other than rural farm households.⁵

As indicated in Table 9, the population density of the urban portion of the Region—as identified by the urban growth ring analysis—decreased significantly, from 10,700 persons per square mile in 1940 to about 5,100 persons per square mile in 1970, 3,900 persons per square mile in 1980, and 3,500 persons per square mile in 1990. During the 1990s, the urban population density decreased slightly—to about 3,300 persons per square mile in 2000. The long-term decrease in the urban population density is due in part to a trend toward lower density residential development. The decrease is also attributable, in part, to significant increases in the number of jobs—jobs having increased at a faster rate than population since 1960—and the attendant increase in commercial and industrial development in the Region. Part of the decrease in the urban population density also relates to the fact that the number of persons per household—the household being the basic unit of demand for residential development—has decreased by 25 percent since 1950.

A different density trend for the Region emerges when urban density is calculated based upon households rather than population (see Figure 8). Since 1963, the relative decrease in urban household density has been much lower than the decrease in urban population density. Between 1963 and 2000, the urban household density decreased by 23 percent, compared to a 43 percent decrease in the urban population density.

Land Use Inventory

The Commission land use inventory is intended to serve as a relatively precise record of land use for the entire area of the Region at selected points in time. The land use classification system used in the inventory consists of nine major categories which are divisible into 66 sub-categories, making the

⁵ The Commission uses this method of approximating the population and households within the urban areas identified in the urban growth ring analysis in the absence of actual population and household counts for these areas. This method may include certain nonfarm residents living outside the identified urban areas in the estimate of the urban population and households for the Region, and, as a result, may overstate somewhat the actual urban population and household densities.

Map 2
HISTORIC URBAN GROWTH
IN THE REGION: 1850-2000

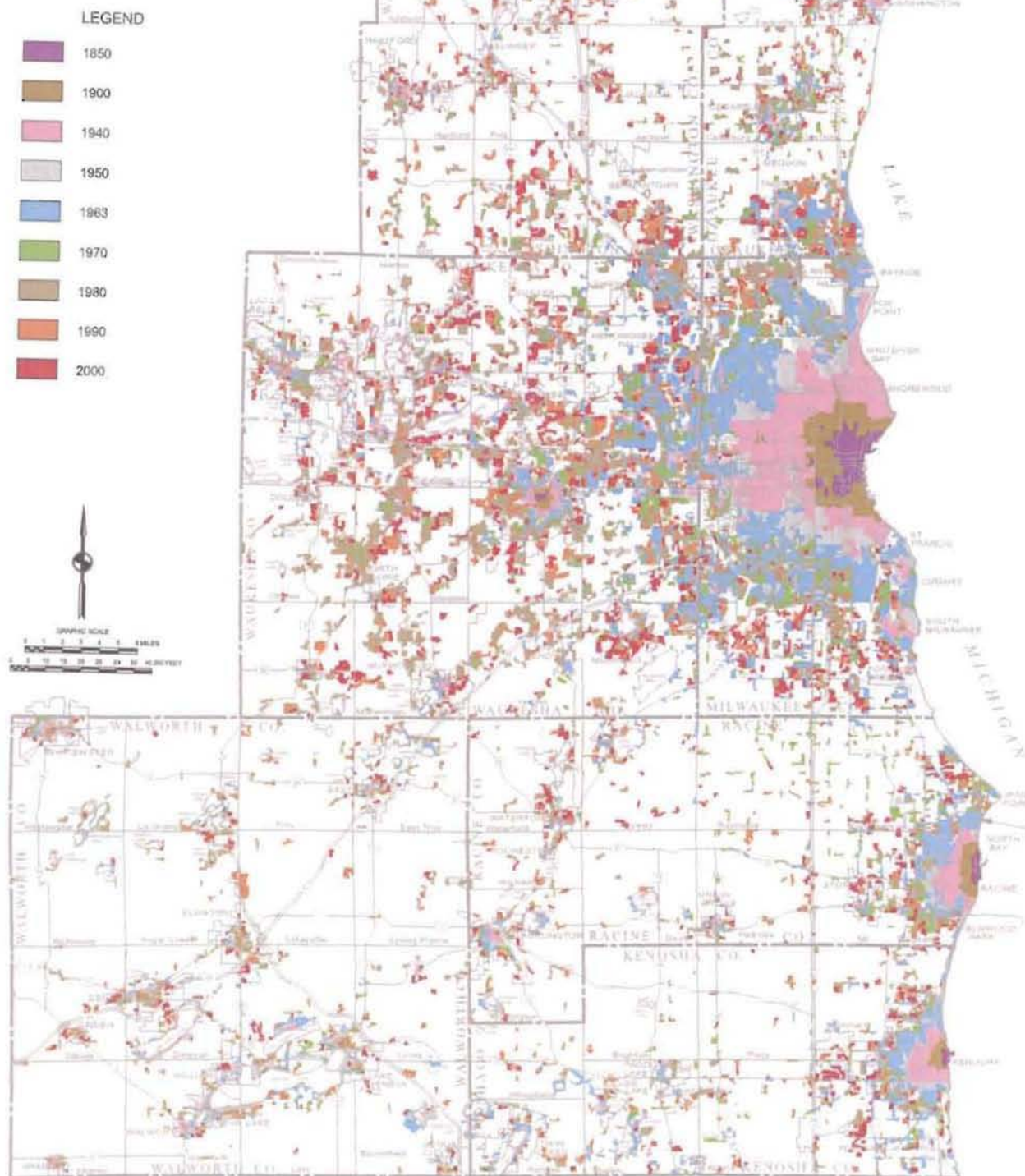


Table 9

URBAN POPULATION DENSITY AND URBAN HOUSEHOLD DENSITY IN THE REGION: 1940-2000

Year	Urban Area ^a (square miles)	Urban Population		Urban Households	
		Persons ^b	Density (persons per urban square mile)	Households ^c	Density (households per urban square mile)
1940	93	991,535	10,662	272,077	2,926
1950	146	1,179,084	8,076	338,572	2,319
1963	282	1,634,200	5,795	470,856	1,670
1970	338	1,728,666	5,114	529,404	1,566
1980	444	1,749,238	3,940	623,441	1,404
1990	509	1,800,751	3,538	672,896	1,322
2000	579	1,923,674	3,322	746,500	1,289

^aBased upon the Regional Planning Commission urban growth ring analysis.

^bTotal population, excluding rural farm population, as reported in the Federal Census; 1963 is Commission estimate.

^cTotal households, excluding rural farm households, as reported in the Federal Census; 1963 is Commission estimate.

Source: U.S. Bureau of the Census and SEWRPC.

inventory suitable for both land use and transportation planning, adaptable to stormwater drainage, public utility, and community facility planning, and compatible with other land use classification systems. Aerial photographs serve as the primary basis for identifying existing land use, augmented by field surveys as appropriate. The most recent regional land use inventory was carried out based upon aerial photography taken in spring of 2000. The results of that inventory are summarized on Map 3 and Table 10.

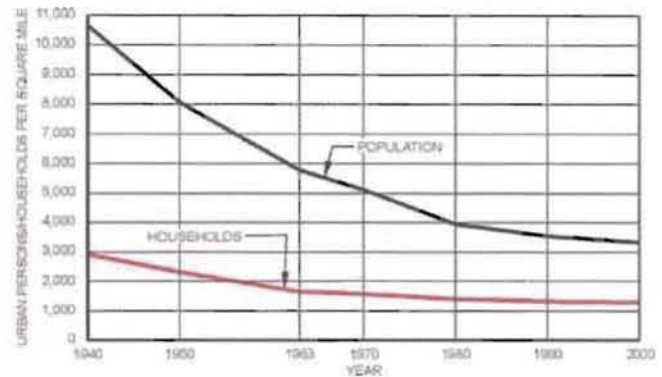
Existing Land Use: 2000

Areas considered "urban" under the land use inventory include areas identified as being in residential, commercial, industrial, transportation-communication-utility, governmental-institutional, or intensive recreational uses, along with "unused" urban lands.⁶ In 2000, urban land uses as identified in the regional land use inventory encompassed about 761 square miles, or 28 percent of the total area of the Region. Residential land comprised the largest urban land use category, encompassing about 362 square miles, or about 48 percent of all urban

⁶ Unused urban lands consist of open lands, other than wetlands and woodlands, which are located within urban areas but which were not developed for a particular use at the time of the land use inventory. Among the lands included in this category are lands where development was underway but not completed at the time of the inventory, and once-developed lands which have been cleared of development.

Figure 8

URBAN POPULATION AND HOUSEHOLD DENSITY IN THE REGION: 1940-2000

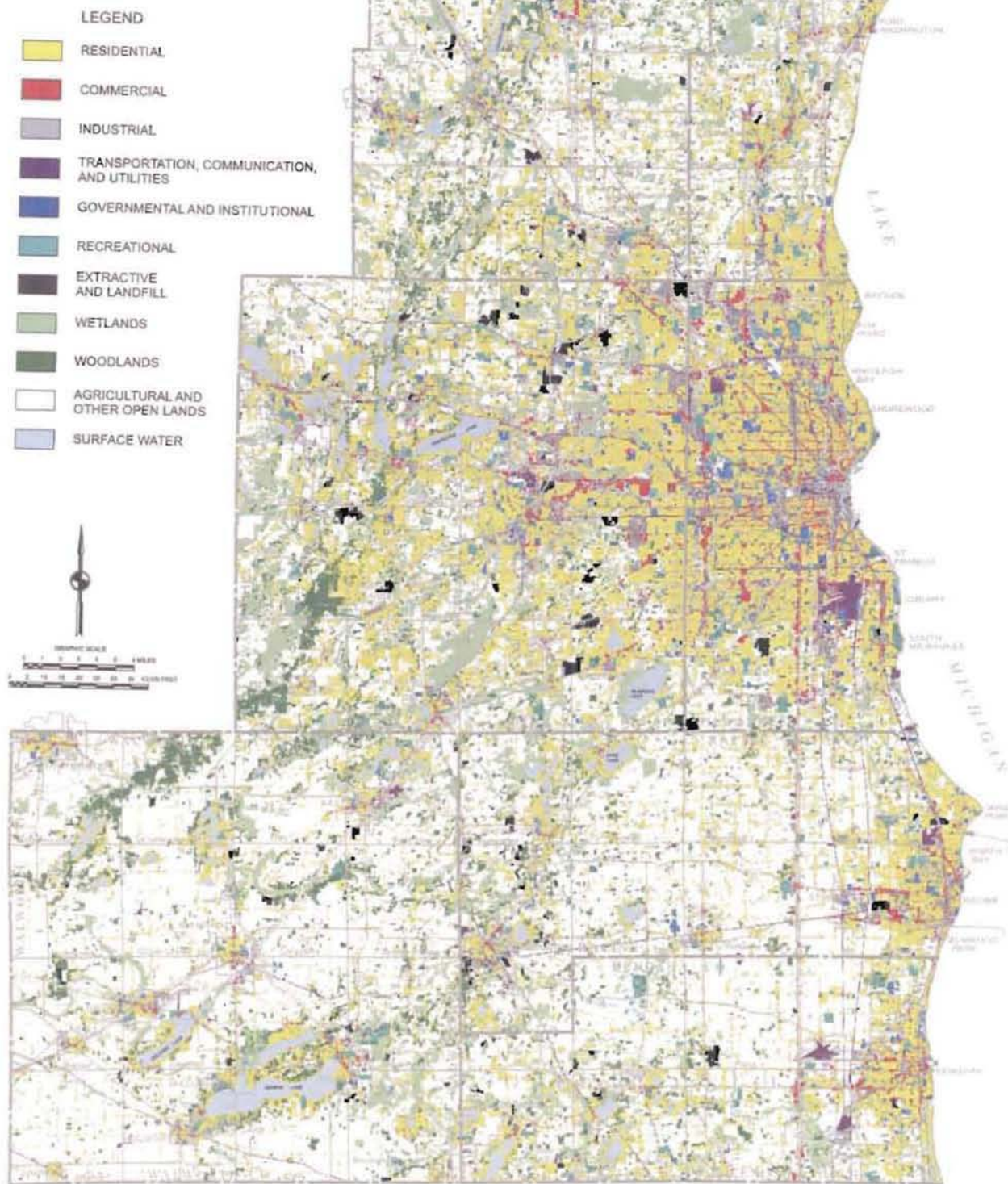


Source: U.S. Bureau of the Census and SEWRPC.

land and about 14 percent of the overall area of the Region.⁷ In combination, commercial and industrial lands encompassed about 63 square miles, or about 8 percent of all urban land and about 2 percent of the Region overall. Land used for governmental and institutional purposes encompassed 34 square miles, or 4 percent of all urban land and 1 percent of the Region overall. Land devoted to intensive recreational uses encompassed about 50 square miles, or 7 percent of all urban land and 2 percent of the Region overall. Land devoted to transportation, communication and utility uses—including areas used for streets and highways, railways, airports, and utility and communication facilities—totaled 201 square miles, or 26 percent of all urban land and 8 percent of the Region overall. Unused urban lands encompassed 51 square miles, or 7 percent of all urban land and 2 percent of the overall area of the Region (see Table 10).

⁷ As identified in the regional land use inventory, the residential land use category encompasses all residential land, including rural residential development, defined as residential development at a density of no more than one dwelling unit per five acres. It is envisioned that, utilizing property boundary information in a digital format, future regional land use inventories will specifically identify the location and extent of rural residential development, enabling the separate reporting of urban and rural residential land.

Map 3
EXISTING LAND USE
IN THE REGION: 2000



Source: SEWRPC.

Table 10

**EXISTING LAND USE IN THE
SOUTHEASTERN WISCONSIN REGION: 2000**

Land Use Category ^a	Square Miles	Percent of Urban/ Nonurban	Percent of Total
Urban			
Residential.....	362.1	47.6	13.5
Commercial	30.3	4.0	1.1
Industrial.....	32.9	4.3	1.2
Transportation, Communication, and Utilities.....	200.9	26.4	7.5
Governmental.....	33.7	4.4	1.2
Recreational	50.4	6.6	1.9
Unused Urban Land	50.9	6.7	1.9
Subtotal Urban	761.2	100.0	28.3
Nonurban			
Natural Areas			
Surface Water	77.4	4.0	2.9
Wetlands	275.7	14.3	10.2
Woodlands	182.7	9.5	6.8
Subtotal Natural Areas	535.8	27.8	19.9
Agricultural	1,259.4	65.3	46.8
Unused Rural and Other Open Land.....	133.5	6.9	5.0
Subtotal Nonurban	1,928.7	100.0	71.7
Total	2,689.9	--	100.0

^aOff-street parking is included with the associated land use.

Source: SEWRPC.

Areas considered “nonurban” under the land use inventory include agricultural lands, wetlands, woodlands, surface water, extractive and landfill sites, and “unused” rural lands.⁸ In 2000, nonurban lands as identified in the regional land use inventory encompassed about 1,929 square miles, or 72 percent of the total area of the Region. Agricultural land constituted the largest nonurban land use

category, encompassing 1,259 square miles, representing about 65 percent of all nonurban land and about 47 percent of the overall area of the Region. Wetlands, woodlands, and surface water together encompassed 536 square miles, representing about 28 percent of all nonurban land and 20 percent of the Region overall. All other nonurban lands, including extractive, landfill, and unused rural lands, encompassed 134 square miles, representing about 7 percent of all nonurban land and 5 percent of the overall area of the Region.

The results of the year 2000 regional land use inventory are presented along with the results of prior land use inventories for the Region in Table 11. Table 11 indicates a significant increase in urban land uses in the Region between 1990 and 2000. As noted above, the year 2000 land use inventory indicates that urban land uses encompassed about 761 square miles in the Region in 2000. This compares to the figure of 637 square miles indicated by the 1990 land use inventory. It is estimated that about 15 square miles—or 12 percent

⁸ *Unused rural lands consist of open lands, other than wetlands and woodlands, which are located within rural areas but which were not in agricultural, pasture, or related use at the time of the land use inventory.*

Table 11

**LAND USE IN THE SOUTHEASTERN WISCONSIN REGION AS
REPORTED IN THE YEAR 2000 AND PRIOR REGIONAL LAND USE INVENTORIES**

Land Use Category ^a	Existing Land Use in Square Miles				
	1963	1970	1980	1990	2000
Urban					
Residential	180.0	210.8	269.1	300.4	362.1
Commercial	11.5	14.8	19.3	24.7	30.3
Industrial	13.5	17.3	22.0	26.1	32.9
Transportation, Communication, and Utilities	134.9	150.0	166.1	171.8	200.9
Governmental	21.8	27.2	30.0	30.8	33.7
Recreational	26.0	33.1	39.3	42.3	50.4
Unused Urban Land	54.5	51.0	45.0	40.5	50.9
Subtotal Urban	442.2	504.2	590.8	636.6	761.2
Nonurban					
Natural Areas					
Surface Water	71.6	74.0	76.2	76.9	77.4
Wetlands	274.3	270.3	266.6	268.7	275.7
Woodlands	186.8	184.3	181.9	185.9	182.7
Subtotal Natural Areas	532.7	528.6	524.7	531.5	535.8
Agricultural	1,637.1	1,564.7	1,475.4	1,395.4	1,259.4
Unused Rural and Other Open Land	77.2	91.6	98.4	126.0	133.5
Subtotal Nonurban	2,247.0	2,184.9	2,098.5	2,052.9	1,928.7
Total	2,689.2	2,689.1	2,689.3	2,689.5	2,689.9

^aOff-street parking is included with the associated land use.

NOTE: As part of the regional land use inventory for the year 2000, the delineation of existing land use was referenced to real property boundary information not available for prior inventories. This change increases the precision of the land use inventory and makes it more useable to public agencies and private interests throughout the Region. As a result of the change, however, year 2000 land use inventory data are not strictly comparable with data from the 1990 and prior inventories. At the county and regional level, the most significant effect of the change is to increase the transportation, communication, and utilities category—the result of the use of actual street and highway rights-of-way as part of the 2000 land use inventory, as opposed to the use of narrower estimated rights-of-way in prior inventories. This treatment of streets and highways generally diminishes the area of adjacent land uses traversed by those streets and highways in the 2000 land use inventory relative to prior inventories. Changes in total area may be due to this procedural change or to actual changes in the Lake Michigan shoreline.

Source: SEWRPC.

of the increase of 125 square miles in urban land indicated by the 1990 and 2000 inventories—is attributable to the referencing of land use delineations to real property boundaries in the 2000 inventory, particularly to the adjustment of estimated street rights-of-way to match actual rights-of-way. Thus, the actual increase in urban land uses in the Region during the 1990s, discounting the effect of procedural changes in the land use inventory, may be estimated at about 110 square miles, or 17 percent. This compares to increases of 46 square miles, or 8 percent, during the 1980s, and 87 square miles, or 17 percent, during the 1970s.

Environmental Corridors

One of the most important tasks completed under the regional planning program for Southeastern Wisconsin has been the identification and delineation of areas of the Region in which concentrations of the best remaining elements of the natural resource base occur. It was recognized that preservation of such areas is important to both the

maintenance of the overall environmental quality of the Region and to the continued provision of amenities required to maintain a high quality of life for the resident population.

Under the regional planning program, seven elements of the natural resource base have been considered essential to the maintenance of the ecological balance, natural beauty, and overall quality of life in Southeastern Wisconsin: 1) lakes, rivers, and streams, and their associated shorelands and floodlands; 2) wetlands; 3) woodlands; 4) prairies; 5) wildlife habitat areas; 6) wet, poorly drained, and organic soils; and 7) rugged terrain and high-relief topography. In addition, there are certain other features which, although not part of the natural resource base per se, are closely related to, or centered upon, that base and are a determining factor in identifying and delineating areas with recreational, aesthetic, ecological, and cultural value. These five additional elements are: 1) existing park and open space sites; 2) potential park and open

space sites; 3) historic sites; 4) scenic areas and vistas; and 5) natural areas and critical species habitat sites.

The delineation of these 12 natural resource and natural resource-related elements on maps results, in most areas of the Region, in an essentially linear pattern of relatively narrow, elongated areas which have been termed “environmental corridors” by the Regional Planning Commission.⁹ Primary environmental corridors include a variety of the aforementioned important natural resource and resource-related elements and are at least 400 acres in size, two miles in length, and 200 feet in width. Secondary environmental corridors generally connect with the primary environmental corridors and are at least 100 acres in size and one mile in length. In addition, smaller concentrations of natural resource base elements that are separated physically from the environmental corridors by intensive urban or agricultural land uses have also been identified. These areas, which are at least five acres in size, are referred to as isolated natural resource areas.

The preservation of environmental corridors and isolated natural resource areas in essentially natural, open uses yields many benefits, including recharge and discharge of groundwater; maintenance of surface and groundwater quality; attenuation of flood flows and stages; maintenance of base flows of streams and watercourses; reduction of soil erosion; abatement of air and noise pollution; provision of wildlife habitat; protection of plant and animal diversity; protection of rare and endangered species; maintenance of scenic beauty; and provision of opportunities for recreational, educational, and scientific pursuits. Conversely, since these areas are generally poorly suited for urban development, their preservation can help avoid serious and costly developmental problems.

Primary Environmental Corridors

As shown on Map 4, the primary environmental corridors in the Region are primarily located along

major stream valleys, around major lakes, and along the Kettle Moraine. These primary environmental corridors contain almost all of the best remaining woodlands, wetlands, and wildlife habitat areas in the Region, and represent a composite of the best remaining elements of the natural resource base. The protection of the primary environmental corridors from additional intrusion by incompatible land uses, degradation, and destruction is one of the key objectives of the adopted regional land use plan.

As indicated in Table 12, primary environmental corridors encompassed about 462 square miles, or about 17 percent of the total area of the Region, in 2000. As indicated in Table 13, there was a small net increase of 0.7 square mile, or 0.2 percent, in primary environmental corridor lands in the Region between 1990 and 2000. The change in area is the net result of increases in primary environmental corridor lands in certain areas of the Region and decreases in other areas. Decreases in primary environmental corridor lands occur, for the most part, as a result of conversion to urban or agricultural use. Increases may occur as a result of managed restoration efforts (e.g., wetland, woodland, or prairie restoration) and as a result of situations where lands, such as farmed floodplains or wetlands, are simply allowed to revert to a more natural condition.

Secondary Environmental Corridors

As further shown on Map 4, secondary environmental corridors are generally located along the small perennial and intermittent streams within the Region. Secondary environmental corridors also contain a variety of resource elements, often remnant resources from primary environmental corridors which have been developed for intensive urban or agricultural purposes.

Secondary environmental corridors facilitate surface-water drainage, maintain pockets of natural resource features, and provide corridors for the movement of wildlife, as well as for the movement and dispersal of seeds for a variety of plant species.



In 2000, secondary environmental corridors encompassed about 75 square miles, or about 3 percent of the total area of the Region. There was a small net increase of 0.2 square mile, or 0.3 percent, in secondary environmental corridor lands in the Region between 1990 and 2000—also the result of increases in secondary environmental corridor lands in certain areas of the Region and decreases in other areas.

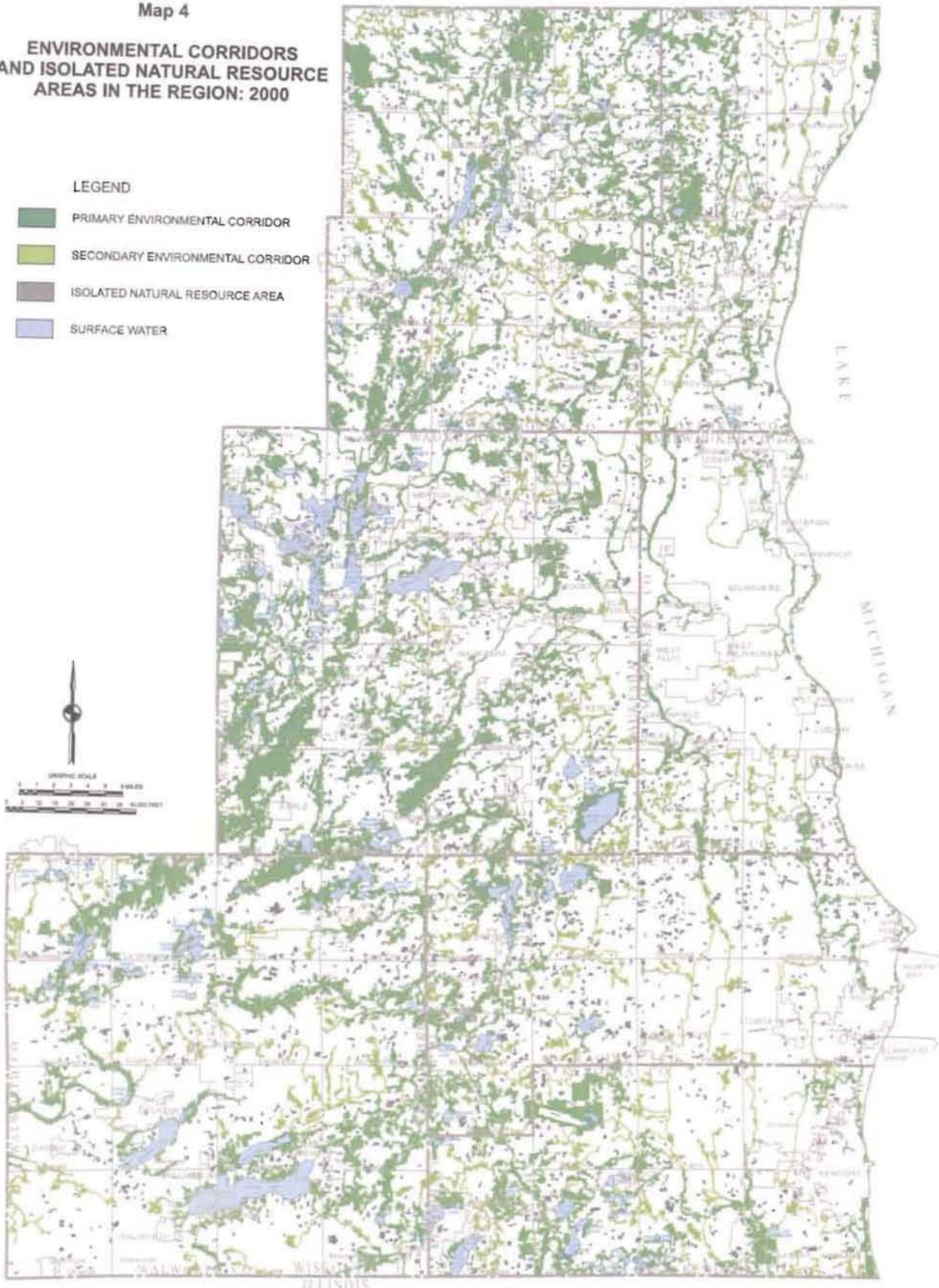
⁹ A detailed description of the process of delineating environmental corridors in Southeastern Wisconsin is presented in the March 1981 issue (Volume 4, No. 2) of the SEWRPC Technical Record.

Map 4

**ENVIRONMENTAL CORRIDORS
AND ISOLATED NATURAL RESOURCE
AREAS IN THE REGION: 2000**

LEGEND

-  PRIMARY ENVIRONMENTAL CORRIDOR
-  SECONDARY ENVIRONMENTAL CORRIDOR
-  ISOLATED NATURAL RESOURCE AREA
-  SURFACE WATER



Source: SEWRPC.

Table 12

ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS IN THE REGION BY COUNTY: 2000

County	Primary Environmental Corridors		Secondary Environmental Corridors		Isolated Natural Resource Areas		Total Environmental Corridors and Isolated Natural Resource Areas	
	Square Miles	Percent of County/Region	Square Miles	Percent of County/Region	Square Miles	Percent of County/Region	Square Miles	Percent of County/Region
Kenosha.....	43.8	15.7	10.0	3.6	6.0	2.2	59.8	21.5
Milwaukee.....	14.5	6.0	5.2	2.1	3.3	1.4	23.0	9.5
Ozaukee.....	32.2	13.7	7.6	3.2	5.6	2.4	45.4	19.3
Racine.....	35.5	10.4	10.8	3.2	12.0	3.5	58.3	17.1
Walworth.....	99.2	17.2	14.6	2.5	12.9	2.3	126.7	22.0
Washington.....	94.2	21.6	15.4	3.6	10.1	2.3	119.7	27.5
Waukesha.....	142.8	24.6	11.2	1.9	13.0	2.3	167.0	28.8
Region	462.2	17.2	74.8	2.8	62.9	2.3	599.9	22.3

Source: SEWRPC.

Table 13

CHANGE IN ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS IN THE REGION: 1990-2000

Resource Feature	Existing 1990 (square miles)	Change: 1990-2000				Existing 2000 (square miles)
		Gains (square miles)	Losses (square miles)	Net Change		
				Square miles	Percent	
Primary Environmental Corridors	461.5	5.5	4.8	0.7	0.2	462.2
Secondary Environmental Corridors	74.6	1.9	1.7	0.2	0.3	74.8
Isolated Natural Resource Areas	63.3	3.0	3.4	-0.4	-0.6	62.9
Total Environmental Corridors and Isolated Natural Resource Areas	599.4	10.4	9.9	0.5	0.1	599.9

Source: SEWRPC.

Isolated Natural Resource Areas

In addition to the primary and secondary environmental corridors, other smaller pockets of wetlands, woodlands, surface water, or wildlife habitat exist within the Region. These pockets are isolated from the environmental corridors by urban development or agricultural use, and although separated from the environmental corridor network, these isolated natural resource areas have significant value. They may provide the only available wildlife habitat in an area, usually provide good locations for local parks, and lend unique aesthetic character and natural diversity to an area.

Widely scattered throughout the Region, isolated natural resource areas encompassed about 63 square miles, or about 2 percent of the total area of the Region, in 2000. There was a small net decrease of 0.4 square mile, or 0.6 percent, in isolated natural resource areas in the Region between 1990 and 2000.

AGRICULTURAL RESOURCE BASE

Agricultural land in the Region has decreased significantly over the past four decades. It is estimated that lands devoted to agricultural use decreased by 22 percent between 1963 and 2000, including a decrease of about 8 percent during the 1990s.¹⁰ Despite this decrease, a large portion of the total area of the Region remains in agricultural use, and agriculture remains an important component of the regional economy.

Based upon the Commission's regional land use inventory, about 1,259 square miles, or 47 percent of the total area of the Region, were in agricultural use

¹⁰ These estimates are based upon the Commission's regional land use inventories and discount the effect of the procedural shifts made as part of the year 2000 inventory, described earlier in this chapter.

in 2000. It should be noted that this figure includes lands actually used for agriculture—primarily cultivated lands and lands used for pasture—and excludes the wetland and woodland portions of existing farm units.

Map 5 shows the extent of agricultural land in the Region as identified in the year 2000 regional land use inventory and further identifies those areas which are covered by highly productive soils—comprised of soils in agricultural capability Class I and Class II, as classified by the U.S. Natural Resources Conservation Service. Agricultural lands covered by Class I and Class II soils encompassed about 945 square miles, or 75 percent of all agricultural land in the Region, in 2000. The adopted regional land use plan recommends the preservation of Class I and Class II soils insofar as practicable.

TRANSPORTATION FACILITIES AND SERVICES

Arterial Street and Highway System

The arterial streets and highways are defined as streets and highways that are previously intended to provide a high degree of traffic service, carrying relatively high volumes of traffic at relatively high operating speeds. The arterial street system may be divided into freeway facilities and nonfreeway, or standard arterial, streets and highways. A freeway is a special type of arterial providing the highest degree of mobility and the most limited degree of access. A freeway is defined as a directionally divided arterial highway with full control of marginal access and grade separation at all intersecting streets and highways. Standard arterial streets and highways may be directionally divided or undivided, with at-grade intersections, and partial or full control of marginal access to abutting property. Table 14 provides information on the mileage of arterials in the Region in 2001. Data on the existing and historic mileage of collector and land access streets and of the total street and highway system within the Region are also provided. Land access streets are primarily intended to provide access to abutting properties. Collector streets are intended primarily as connectors between the arterial and land access street systems. Streets and highways may also be classified according to jurisdiction. Jurisdictional classification establishes which level of government—State, county, or local—has responsibility for the design, construction, maintenance, and operation of each segment of the total street and

highway system. Table 15 presents the distribution of existing arterial highway mileage within the Region in 2001 by State, county, and local jurisdictional classification. Map 6 shows the arterial street and highway system as it existed within the Region in 2001, by freeway and standard facility and by jurisdictional classification.

The location and configuration of the State Trunk Highway system, consisting of both freeway and nonfreeway facilities, has particular significance for telecommunications system planning. In order to provide public safety these facilities require good wireless telecommunications services.

Arterial Street and Highway System Traffic Volume

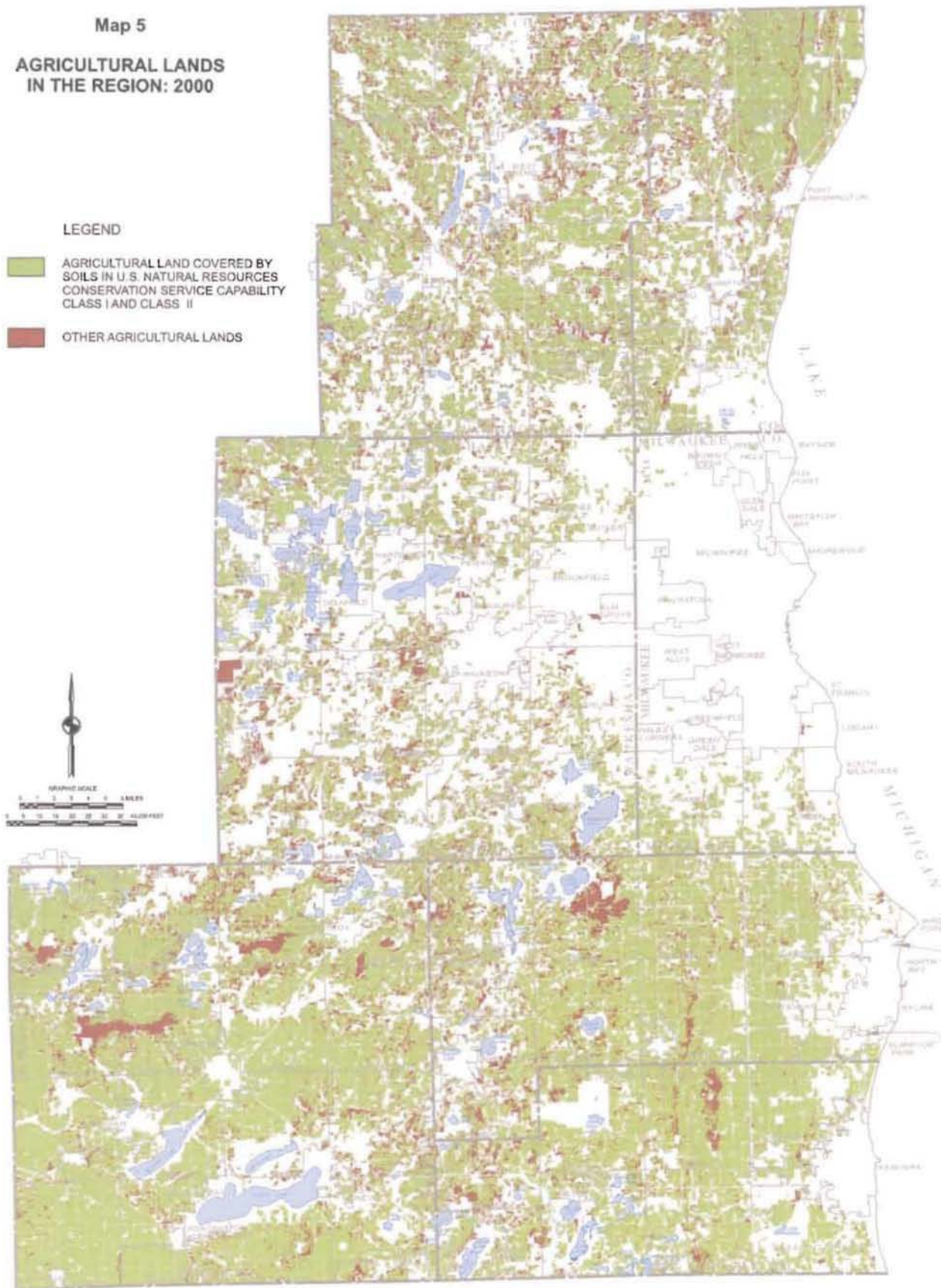
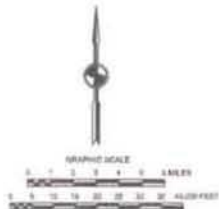
The average weekday traffic volume on each segment of the arterial street and highway system within the Region in 2001 is graphically displayed on Map 7. The magnitude of arterial street and highway traffic volume can also be measured in terms of total arterial system average weekday vehicle-miles of travel. About 40.0 million vehicle-miles of travel occurred on the arterial street and highway system within the Region on an average weekday in 2001. Freeways, which comprise about 8 percent of the total arterial street mileage, carried 37.2 percent of the total arterial vehicle miles of travel which took place within the Region on an average weekday in 2001.

Public Transit

Public transportation may be divided into service provided for the general public and service provided to special population groups. Examples of special group public transportation include yellow school bus service operated by area school districts, and fixed-route bus and paratransit van service provided by counties or municipalities for the elderly and disabled. Service to special population groups is considered only implicitly in the public transportation planning process, with the exception of paratransit operated within urban fixed-route transit service areas to meet the transportation needs of those persons who because of mental or physical disability are unable to use conventional transit service. Such service is required to be provided within fixed-route urban transit service areas under the Federal Americans with Disabilities act of 1990, and the needed configurations of such service is explicitly considered by the Commission in regional transportation system planning.

Map 5
AGRICULTURAL LANDS
IN THE REGION: 2000

- LEGEND**
- AGRICULTURAL LAND COVERED BY SOILS IN U.S. NATURAL RESOURCES CONSERVATION SERVICE CAPABILITY CLASS I AND CLASS II
 - OTHER AGRICULTURAL LANDS



Source: SEWRPC.

Table 14

**DISTRIBUTION OF TOTAL ARTERIAL STREET AND HIGHWAY SYSTEM
MILEAGE AND VEHICLE MILES OF TRAVEL (VMT) WITHIN THE REGION BY COUNTY: 2001**

County	Total Miles	Freeway System Miles	Nonfreeway System Miles
Kenosha	317.6	12.0	305.6
Milwaukee.....	781.8	67.8	714.0
Ozaukee	250.7	26.2	224.5
Racine	352.6	12.0	340.6
Walworth.....	436.6	48.9	387.7
Washington.....	406.5	42.8	363.7
Waukesha.....	746.0	60.0	686.0
Region	3,291.8	269.7	3,022.1

County	Total VMT in Thousands	Freeway System		Nonfreeway System	
		VMT in Thousands	Percent	VMT in Thousands	Percent
Kenosha	3,119.0	806	25.8	2,313	74.2
Milwaukee.....	16,666.0	6,895	41.4	9,771	58.6
Ozaukee	2,235.0	949	42.5	1,286	57.5
Racine	3,374.0	865	25.6	2,509	74.4
Walworth.....	2,338.0	763	32.6	1,575	67.4
Washington.....	3,091.0	1,369	44.3	1,722	55.7
Waukesha.....	9,160.0	3,237	35.3	5,923	64.7
Region	39,983.0	14,884	37.2	25,099	62.8

Source: SEWRPC.

Table 15

**DISTRIBUTION OF EXISTING ARTERIAL STREET AND HIGHWAY MILEAGE
WITHIN THE REGION BY COUNTY AND JURISDICTIONAL CLASSIFICATION: 2001**

County	State			County		Local		Total	
	Trunk Highways (miles)	Connecting Streets (miles)	Percent of Total	Miles	Percent of Total	Miles	Percent of Total	Miles	Percent of Total
Kenosha	107.4	10.1	37.0	140.8	44.3	59.3	18.7	317.6	100.0
Milwaukee.....	175.3	87.3	33.6	87.7	11.2	431.5	55.2	781.8	100.0
Ozaukee	67.9	11.1	31.5	109.0	43.5	62.7	25.0	250.7	100.0
Racine	140.5	21.2	45.9	118.9	33.7	72.0	20.4	352.6	100.0
Walworth.....	193.0	18.4	48.4	168.9	38.7	56.3	12.9	436.6	100.0
Washington.....	173.3	14.4	46.2	149.8	36.9	69.0	16.9	406.5	100.0
Waukesha.....	220.5	18.4	32.0	351.7	47.1	155.4	20.9	746.0	100.0
Region	1,077.9	180.9	38.3	1,126.8	34.2	906.2	27.5	3,291.8	100.0

Source: Wisconsin Department of Transportation and SEWRPC.